

**From:** [Warr \(Kettler\), Kristie](#)  
**To:** [Moore, Gary](#); [Wright, Jeff](#)  
**Subject:** RE: Container Waste Code Data (DRAFT)  
**Date:** Wednesday, November 19, 2014 1:32:18 PM

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Gary,

Are there specific samples that you would like us to check? With respect to the clean-ups discussed below, the lab most likely makes sample specific decisions on which clean-ups are needed. If I provide a specific list of samples, it will allow for the lab to provide a quicker response.

Thanks,  
Kristie

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**From:** Gregg, Diane [mailto:[Gregg.Diane@epa.gov](mailto:Gregg.Diane@epa.gov)]  
**Sent:** Wednesday, November 19, 2014 11:12 AM  
**To:** Moore, Gary; Warr (Kettler), Kristie; Wright, Jeff  
**Subject:** RE: Container Waste Code Data (DRAFT)  
My comments in red.

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**From:** Moore, Gary  
**Sent:** Wednesday, November 19, 2014 8:45 AM  
**To:** Warr (Kettler), Kristie; Wright, Jeff  
**Cc:** Gregg, Diane  
**Subject:** Fw: Container Waste Code Data (DRAFT)

**Hello All:**

**I got this information back from a PRP technical person (chemist). I indicated to her we were having issues with the commercial lab not being able to meet the Regulatory Levels. Could you look at this and see if it makes sense and Kristie/Jeff could you see if the lab performed the cleanup steps she has indicated.**

**Thanks**

**Gary Moore**

**Federal On-Scene Coordinator**

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**From:** Brenda Basile <[Brenda.Basile@pbwllc.com](mailto:Brenda.Basile@pbwllc.com)>  
**Sent:** Tuesday, November 18, 2014 8:31 PM  
**To:** Moore, Gary  
**Subject:** RE: Container Waste Code Data (DRAFT)  
Gary:

Attached is the spreadsheet you sent. I copied the data into a separate worksheet called "Hazardous" so I could look at the data for the samples causing the detection limit problems. I went through the reports on the TCEQ web page and put in the concentrations in the totals and TCLP analyses for those analytes listed under RCRA Codes due to matrix interference. We don't have all the data but there is enough to come up with some ideas. I moved some waste codes into RCRA codes eliminated based on totals. My changes are italicized. As you can see the only codes remaining are D020, D030, D032, and one D043.

D033 – Hexachlorobutadiene.

This analyte is reported from both the VOC and SVOC analyses. I noticed that in general the VOC analyses had lower sample detection limits. (See VB618, VB640, Stank1\_3\_6 Comp-Sludge). I didn't have data for the FT215005D and FT215012D samples; you can check the VOC analyses on

those. If D033 can be eliminated from these then the only one left is VB639; the VOC detection limit is 15 mg/kg so that exceeds the 10 mg/kg for totals. Ask the laboratory if they can report the hexachlorobutadiene result from the VOC analysis instead. There would not need to be a reanalysis; only adding the analyte to the reporting list. If these suggestions work, then you should not have hexachlorobutadiene as a RCRA code due to matrix interference. Agreed

D043 – Vinyl chloride If this is a problem, then 8021 is an alternate method for vinyl chloride. In general GC detector methods tend to be more sensitive than GC/MS (full scan; single quad); however the EQLs listed in Method 8021 are 1 ug/L which 8260 can do easily. 8021 may be able to go lower than that since 8260 currently lists 5 ug/L as the EQL. The method may not have been updated for advanced in equipment. We do not analyze volatiles by this method so I have no experience.

D020 – Chlordane The CAS RN for chlordane in 40 CFR 261.24 is 57-74-9 which is for chlordane (NOS). I don't know if you can do this but the sum of the alpha- and gamma-chlordane sample detection limits for VB25141 and VB640 are less than the hazardous limit. It would depend how far below the MCL that they are. alpha and gamma isomers tend to be about 30% of the total chlordane amount (in real analyses here, we found them to come out about 10% each). I don't think they can be summed unless they are about 1/5 the haz limit.

D020 – Chlordane; D030 – 2,4-Dinitrotoluene; D032 – Hexachlorobenzene

SW-846 has a florasil cleanup procedure for these analytes, method 3620C. I've attached a copy of the method and highlighted the sections that pertain to these compounds. The analytical summary on the "Hazardous" worksheet shows that many of the TCLP detection limits only exceed the EPA hazardous levels by a factor of 2 or 3. I'd recommend talking to the laboratory and asking them if they have performed a cleanup step on the TCLP extracts. This should reduce the matrix interferences sufficiently to reduce the sample detection limits to below the regulatory hazardous levels. For example, see chlordane in VB25141, VB281242, and VB640; 2,4-dinitrotoluene in VB640 and STank8; hexachlorobenzene in VB633, VB25141, VB281242, VB640, NTank8, STank2, and STank8. This would also work for the extracts of the water samples (see STank2, STank8, NTank9\_10 Comp, OT4\_OT5 Comp, and STank1\_3\_6 Comp water). This should be less work than setting up a selected ion monitoring method discussed below. In general full SVOC analyses only employ GPC as a cleanup. This is because all analytes will be recovered using this technique. In florasil, analytes will elute in different fractions or not elute at all. We did investigate doing using florasil and other cleanups for specific analytes for CES but ended up not using them since the GC-QQQ worked. They would have to be employed on a analyte by analyte basis. The third worksheet "Alternate Methods" lists secondary methods for 2,4-dinitrotoluene and hexachlorobenzene. You can find laboratories that perform these analyses; for example, I have used Lancaster for Method 8330 and I understand that TestAmerica also performs the analysis (note these are not endorsements, only recommendations as to contacts). Explain to the laboratories the sample types and the EPA hazardous levels to verify they can report sufficiently low detection limits to meet your needs.

The third alternative for these three contaminants is setting up a selected ion method (SIM). I found one laboratory (Accu Laboratory in Bellevue, Washington; <http://www.accu-lab.com/services/semivolatiles/>) that performs these analyses for 2,4-dinitrotoluene and hexachlorobenzene. Also I found an EPA water method 525.3 that has the SIM parameters for hexachlorobenzene and chlordane. The columns labeled ions, internal standard and surrogate standard list the mass spectrometer parameters I recommend. The laboratory already has retention times for 2,4-dinitrotoluene and hexachlorobenzene from the 8270 analyses. They should run a chlordane standard and identify the retention times of the major peaks. They can set up the SIM with one segment (m/z 89, 164, 165, 172, 188, 244, 284, 249, 373 and 375) or divide up the masses based on retention times. The fewer the ions in one scan the better the sensitivity. Once the SIM parameters are identified, then a minimum of three and preferably five calibration standards should be analyzed. If I did my calculations correctly, the lowest standard should be equivalent to a final concentration of 0.25 ug/L. This would allow for a 400 fold dilution ( $400 \times 0.25 \text{ ug/L} = 0.1 \text{ mg/L} < 0.13 \text{ mg/L}$ ). In lieu of a method detection limit study, the laboratory should only report to the method quantitation limit

(the lowest standard). After linearity of the calibration is verified, then the laboratory can analyze the samples. Based on the "Hazardous" worksheet, there would be 17 samples, plus any quality control such as a laboratory control sample to show the method works in a clean laboratory matrix.

Assumption: the reason haz limits are not being met is presence of oil-- I believe SIM would work for HCB. The ions for HCB are unique and won't pose a problem in oily matrices. SIM probably will not work for DNTs in oily samples. All the major ions in DNT that could be used in SIM are present in oils. I have attached a picture of what DNT looks like in FT506. You cannot distinguish it from the background of oil (disregard the integrations in the graphics; DNT has not been correctly identified). What method were they using for Chlordane? A GC-ECD method (8081) would be more sensitive and selective than GC-MS using SIM. Probably at least a factor of X10 lower. A sulfuric acid cleanup and florisil cleanup would work best for chlordane in oil and analyze by GC-ECD.

I think the biggest pushback you will get for the SIM method is that they are not "accredited" for the method. However, we have been successful in having regulatory agencies accept non-standard methods without accreditation for non-routine analyses. The data quality objective is to provide sufficiently sensitive methods to allow the disposal companies to accept the waste.

Hopefully these suggestions will help you with the waste removal at the site. I can talk with the laboratories if they have further questions.

Thanks

Brenda

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**From:** Moore, Gary [<mailto:Moore.Gary@epa.gov>]

**Sent:** Tuesday, November 4, 2014 1:51 PM

**To:** Brenda Basile

**Subject:** CES: Container Waste Code Data (DRAFT)

**Brenda:**

**Here is the table that we were looking at previously. You can see the issues we are having with matrix interferences with the codes that would be assigned as a result of higher detection limits above the regulatory levels. If you see anything, please let me know.**

**Thanks**

**Gary Moore**

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